OFFICE OF THE CITY ATTORNEY
THE CITY OF FORT WORTH
1000 THROCKMORTON
FORT WORTH, TEXAS 76102

(817) 871-7600
FAX (817) 871-8359

DOCKET FILE COPY ORIGINAL

September 18, 1996

Office of the Secretary
Federal Communications Commission
Washington, DC 20554

Re: Comments of the City of Fort Worth, Texas in Response to the Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010: WT Docket No. 96-86, Notice of Proposed Rule Making

Please find enclosed one (1) original and nine (9) copies of the Comments of the City of Fort Worth, Texas in the above-referenced proceeding. Please ensure that each Commissioner receives a personal copy of these Comments. We appreciate your assistance in this matter.

Sincerely,

Peter Vaky

Peter Vaky
Assistant City Attorney

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
	)	
The Development of Operational,	)	WT Docket 96-86
Technical, and Spectrum Requirements	)	
For Meeting Federal, State and Local	)	
Public Safety Agency Communication	)	
Requirements Through the Year 2010	)	

To the Commission:

COMMENTS OF THE CITY OF FORT WORTH, TEXAS

TABLE OF CONTENTS

PAGE

SUMMARY i

INTRODUCTION 1

DISCUSSION 2

I. INTEROPERABILITY ISSUES 2
A. "Public Safety" Definition 2
B. Interoperability Definition, Needs and Options 3

II. OPERATIONAL ISSUES 5

III. TECHNOLOGY ISSUES 6

IV. SPECTRUM ALLOCATION OPTIONS 9
A. Allocation of Additional Spectrum 9
B. System Sharing 10
C. Increased Use of Commercial Services 10

V. TRANSITION ISSUES: FUNDING FOR SPECTRUM MIGRATION 11

VI. COMPETITION IN THE SUPPLY OF GOODS AND SERVICES 11

CONCLUSION 12

SUMMARY

The City of Fort Worth, Texas ("Fort Worth") has for some time recognized an alarming shortage of radio spectrum allocated for public safety wireless operations. Fort Worth is pleased that the Commission shares the concerns of the public safety community in this respect. Fort Worth supports the Commission's emphasis on the development of interoperability between various public safety agencies. It strongly believes that the most effective way to promote interoperability among local, state and federal public safety systems is through a regulatory approach that encourages voluntary cooperation and efforts at achieving interoperability to a degree that utilizes spectrum efficiently yet serves the local needs of each particular public safety jurisdiction.

Fort Worth realizes that with this approach, a variety of special circumstances may nevertheless prevent some licensees from achieving maximum interoperability. Therefore, Fort Worth supports a regulatory framework that will encourage cooperation between commercial equipment and service providers and public safety agencies when interoperability agreements exclusively between various agencies is for some reason not feasible. In this context, Fort Worth requests the Commission to address in detail the sometimes stringent financial constraints that challenge public safety agencies.

Fort Worth also shares the Commission's hope that the development of spectrally efficient technologies will advance the common goals of the Commission, the public safety community and commercial providers. Fort Worth is convinced that a robustly competitive market environment for public safety equipment and services will serve as the best mechanism to spur the development of these future groundbreaking technologies.

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
	)	
The Development of Operational,	)	**WT Docket 96-86**
Technical, and Spectrum Requirements	)	
For Meeting Federal, State and Local	)	
Public Safety Agency Communication	)	
Requirements Through the Year 2010	)	

To the Commission:

COMMENTS OF THE CITY OF FORT WORTH, TEXAS

The City of Fort Worth, Texas ("Fort Worth") hereby files the following comments in the above-captioned proceeding:

INTRODUCTION

In this proceeding, the Commission seeks comment pertaining to the present state and potential future of public safety wireless communications.[1] A city with over 475,000 residents and the seat of government for a county with a population of over 1.2 million, Fort Worth has one of the largest trunked radio systems in the nation. Fort Worth commends the Commission for its forward thinking and in-depth analysis of the spectrum requirements of the public safety community. As an active participant in the Public Safety Wireless Advisory Committee ("PSWAC"), Fort Worth believes that future public safety spectrum needs can be met through policies that (1) encourage local public safety agencies to work together to achieve maximum

1 *See Notice of Proposed Rule Making*, WT Docket No. 96-86, released April 10, 1996 (the "*Notice*").

efficiency and, at the same time, to address the specific needs unique to each respective area; (2) encourage commercial entities to work with public safety agencies to achieve more efficient public safety systems and, therefore, more efficient use of the spectrum in general; and (3) foster robust competition in the marketplaces for public safety communications equipment and services.

DISCUSSION

I. INTEROPERABILITY ISSUES.

A. "Public Safety" Definition.

The Commission seeks comment regarding the definition of "public safety" that PSWAC currently is considering.[2] While Fort Worth philosophically supports a definition of "public safety" that encompasses a range of vital public services, it also recognizes the reality of the limitations that the scarcity of available spectrum currently impose. As a result, Fort Worth favors a definition that embraces the traditional concepts of "public safety" as the "protection of life and property." The definition of "public safety" should therefore be narrow enough to ensure that police, fire and EMS agencies have enough spectrum to operate at peak efficiency in the decades of the near future. As the needs of the public safety community become clearer and technology continues to advance, the definition can be broadened to include other services that do not directly involve the protection of life and property, but are, nonetheless, important to local communities.

2 *Notice* at para. 25.

B. Interoperability Definition, Needs and Options.

Fort Worth is pleased with and supports the definitions of "interoperability" and related definitions set forth in the *Notice* as well as with the Commission's conclusions as to the general contexts in which the need for interoperability in public safety communications arises.[3] Fort Worth is also delighted that the Commission has taken notice of the efforts that public safety agencies have undertaken on their own to address the problems associated with multi-jurisdictional and multi-discipline interoperability.[4]

Fort Worth has had tremendous success with cooperative interoperability arrangements with other local public safety agencies. Its public safety trunked radio system currently is shared by twenty-seven (27) agencies, including police and fire departments in Fort Worth and several major suburban cities in the Dallas-Fort Worth Metroplex; the various public safety agencies of Tarrant County; ten local hospitals; and a number of universities and school districts. In addition, Fort Worth has exchanged system keys with even more agencies to allow for further interaction between members of the public safety community in the Metroplex. Fort Worth urges the Commission to encourage joint networks wherever possible.

Although Fort Worth agrees with the Commission that the relocation of all public safety communications to a new spectrum band is a potential solution to interoperability problems, the cost of such a migration would prove prohibitive and very likely infeasible to most public safety agencies without significant, if not complete, financial and technical

3 *Id.* at paras. 26-31.
4 *Id.* at para. 32.

assistance from commercial systems.[5] In addition, Fort Worth, like the Commission, recognizes that there is no portion of the radio frequency spectrum to which the public safety community can relocate in the near future and that this approach will require additional public safety spectrum.[6]

Another option that the Commission has identified as a means by which to satisfy the interoperability requirements of public safety agencies is the designation of universal mutual aid channels.[7] The Commission suggests that access to such designated mutual aid channels could be accomplished through the use of multi-band radios or additional radio units. Fort Worth is concerned that this option would be inefficient and cost prohibitive to public safety agencies. Aside from the high cost involved in the procurement and regular maintenance of a stock pile of radios, the industry has not yet produced a cost effective radio that is capable of operating between 30 and 800 MHz and able to withstand the operational demands and requirements inherent in the public safety community.

Fort Worth recognizes the value and importance of looking forward to develop new or additional methods of interoperability. At the same time, it is concerned that options put into place before the full development of technology to make those options feasible will place an unnecessary and perhaps unsafe strain on the public safety community. However, with the adoption of policies and regulations that encourage the development of new technology and that foster competition in the marketplace, as

5 *Id.* at paras. 34-35.
6 *Id.*
7 *Id.* at para. 36.

discussed *infra*, the Commission can establish the groundwork that will lead to the removal of these obstacles without the need for costly or complex regulation.

II. OPERATIONAL ISSUES.

The Commission recognizes that the public safety community of the future will utilize not only conventional operations that involve the transmission of voice and data, but a host of other high speed data applications.[8] Fort Worth eventually intends to implement all of the service features listed by the Commission in the *Notice* as technology and finances allow. However, because some of these features are still in the developmental stage and are not ready to be implemented on a system wide basis, Fort Worth is not in a position to prioritize their necessity.

The Commission seeks comment from public safety agencies regarding their performance requirements for radio communications systems and equipment. The Commission also seeks comment as to whether some system requirements are so critical that it should require them for all public safety equipment.[9] Fort Worth's trunked radio system, like most public safety communication systems in urban areas, must have the capacity to handle not only routine day-to-day traffic, but also the heavy communication requirements that occur during multiple emergencies. Obviously, the public safety community cannot tolerate any level of system downtime or unavailability. The success of a public safety communications system is determined by the speed of transmission; speed of channel acquisition; audio quality; system reliability; system capacity; portable in-building coverage in urban areas and wide area coverage throughout

8 *Id.* at para. 48.
9 *Id.* at para. 51.

the jurisdictional area, which, in Fort Worth's case, is almost 650 square miles. Given the critical necessity that public safety equipment operate at the highest level at all times, the Commission's rules should specify receiver performance standards and require those standards for type acceptance and licensing.

The Commission has also requested comment as to whether it generally should require public safety licensees to utilize joint networks for their public safety communications. As previously discussed in these Comments, Fort Worth has experienced great success in the transition of its public safety trunked radio system from independently operated multi-channel systems to a joint network. As a general rule, a joint network utilizes a smaller number of frequencies to meet the public safety needs in a particular jurisdiction than would otherwise be required by a series of independently operated systems in the same area. In addition, with a joint network, the issue of interoperability is much more easily handled and can be built right into the system design. However, Fort Worth recognizes that what has worked for it may not necessarily work for another public safety agency. Therefore, with the success of its own joint network in mind, Fort Worth recommends that the Commission adopt policies and rules that strongly encourage the formation of joint networks but that provide enough flexibility to address the special circumstances where the operation of an individual system is necessary or more appropriate.

III. TECHNOLOGY ISSUES.

The Commission seeks comment regarding the impact of new technologies as it relates to

the provision of new communications services as well as the demand for spectrum.[10] Fort Worth believes that new technology, which currently is advancing at a tremendous rate, will certainly help to meet the needs of the public safety community in general and to reduce the need for additional spectrum. However, new technology alone will not in itself overcome problems encountered because of the shortage of spectrum. Although technology advances today seem limitless, as one might conclude by following the computer industry and the advances in the integrated circuit arena, at some point, perhaps not too far in the future, the limits of physics may significantly slow down the current rate of such advances. In addition, even if technology continues to advance at its current rate, the public safety community does not have the ability or financial capacity to implement those advances into their systems at the same rate. The Commission's rules should recognize the political and financial realities and roadblocks inherent in the budgeting, funding, procurement and installation phases of a state-of-the-art public safety system.

Moreover, advances in technology often require the user of that new technology to, in effect, take two steps forward and one step back. For example, Fort Worth in particular and the public safety community in general eagerly embraced new trunking technology. Although trunking technology helped to increase spectrum efficiency, it also contributed to interoperability problems because of the incompatibility of trunked radio systems by different manufacturers. This incompatibility still exists today and, in fact, may become even more problematic with the development of digital radio technology and trunking standards. As a result, public safety agencies linking multiple systems for shared wide-area operations require time to overcome these obstacles. In the meantime, the need for additional spectrum to serve the immediate

10 *Id.* at para. 57.

requirements of the public continues unabated.

Fort Worth agrees with the Commission's goal "to provide an environment in which licensees have flexibility to choose from a range of technologies to support their respective operational requirements."[11] Accordingly, Fort Worth supports a regulatory approach that allows the user to select the technology that best serves its particular system and situation. The various technologies discussed in the *Notice* all have advantages and disadvantages that may affect the selection of an individual user.

Assuming that the Commission does not mandate the use of particular technologies, the Commission seeks comments regarding alternative regulatory approaches that permit maximum flexibility but, at the same time, advance elements such as interoperability.[12] Fort Worth recommends that the Commission adopt rules that specify channel bandwidth and efficiency standards. This approach will allow the public safety community to meet its needs within a competitive bidding framework. Any regulatory standards, however, should result in a complete, all-encompassing open architecture that will allow any manufacturer to build new equipment compatible with the user's existing equipment.

In addition, Fort Worth believes that the Commission should specify technical standards for both receivers and transmitters.[13] Fort Worth agrees with the National Telecommunications and Information Administration ("NTIA") in its conclusion that interference with other users of the spectrum is "actually a function of transmitter and receiver performance and that spectrum efficiency is enhanced whenever both are optimized."[14] In order to obtain the best system

11 *Id.* at para. 56.
12 *Id.* at para. 67.
13 *See Notice* at para. 68.
14 *Notice* at para. 68.

operation performance, the receiver selectivity and intermod rejection need to be as high as possible. If the receiver has excellent sensitivity, but poor selectivity or adjacent channel performance, then the resulting system performance will be driven by the selectivity, reducing the possibility of channel usage. With narrowband transmitters in operation, non-regulation of receivers will have a disastrous effect on public safety communications systems. The bandwidth of 12 1/2 kHz today and 6 1/4 kHz in the future will allow public safety agencies to group transmitters closer together. However, a wideband receiver receiving two to four different signals will deteriorate the readability of the incoming transmission. As a result, Fort Worth encourages the Commission to adopt technical standards for receivers and transmitters as well as overall system performance standards.

IV. SPECTRUM ALLOCATION OPTIONS.

A. Allocation of Additional Spectrum.

The *Notice* sets forth a number of regulatory approaches to address the problems of congested spectrum and fragmented bands facing the public safety community,[15] all of which are viable and practical to varying degrees. However, the easiest and most timely solution is the allocation of additional spectrum so long as the additional spectrum is close enough to the current band assignments that the manufacturing industry would not have to perform a major redesign of the radios currently on the market. PSWAC has stated that the public safety community needs additional spectrum to fulfill its mission of protection of life and property, and it has identified possible sources within the radio

15 *Id.* at para. 72.

frequency spectrum.[16]

B. System Sharing.

Although Fort Worth favors rules by the Commission that encourage system sharing, it does not favor a regulatory environment that mandates it because system sharing may not be practical in all situations. In addition, the procurement time for a major public safety system can extend over a period of several years. A rule that required system sharing across the board might very well delay the implementation of critical systems while the user sought out sharing agencies.

C. Increased Use of Commercial Services.

The use of commercial wireless services certainly will help to eliminate the spectrum problems experienced by the public safety community. However, commercial wireless services currently are not capable of supporting the dispatch functional requirements of public safety operations where instantaneous system access is required. In addition, commercial services are either unavailable or severely limited in times of crisis and disaster. Therefore, while commercial service providers have the ability to provide some relief to spectrum crowding, their involvement in public safety should be limited to the agencies' administrative functions. Until technology has advanced to allow commercial services to provide a dispatch environment and public safety agencies have had the time to establish quality working relationships with these providers in a more limited context, the most viable solution to the problem at hand is the allocation of additional spectrum to the public safety community for operational and tactical

16 *Report of PSWAC Spectrum Requirements Subcommittee*, PSWAC/SRS 100/1 (1996).

communications.

V. TRANSITION ISSUES: FUNDING FOR SPECTRUM MIGRATION.

As discussed previously in these Comments, Fort Worth recognizes that the relocation of all public safety communications to a new spectrum band may constitute an important step toward a solution of the current deficiencies the Commission has identified. Fort Worth also agrees with the Commission that the "financial requirements inherent in such a migration [to newly allocated spectrum] is a significant obstacle to its realization."[17] The Commission suggests that the value of present public safety spectrum could be used to underwrite the costs of migration by auctioning the spectrum that becomes available as public safety users migrate from existing systems.[18]

Fort Worth is concerned that the financial considerations in this approach may undermine a much more important issue: the ability of the public safety community to provide its services of protection of life and property to the public. Public safety systems need to stay within the VHF, UHF and 800 MHz band because the propagation characteristics there are the best for the operational and tactical communications requirements of the public safety community. The auctioning of these bands will hinder the operations of the public safety community rather than help it. Instead, Fort Worth urges the Commission to allocate contiguous spectrum between 150 and 900 MHz to the public safety community.

VI. COMPETITION IN THE SUPPLY OF GOODS AND SERVICES.

The Commission suggests that a lack of robust competition in the market for public safety

17 *Id.* at para. 91.
18 *Id.*

communications equipment and services has contributed to the deficiencies this proceeding seeks to address. It states that "[s]ubsequent to initial procurement, competition is virtually non-existent; therefore, maintenance, upgrades and expansion are often limited to one provider."[19] Fort Worth completely agrees with the Commission's observations in this respect. The current market climate stymies the ability of public safety agencies to obtain technically innovative and reasonably priced equipment and services. Fort Worth believes, as the Commission has tentatively concluded, that any rules the Commission adopts to foster competition in the market place should not favor the use of any proprietary technology or methods.

CONCLUSION

Fort Worth is pleased that the Commission recognizes immense deficiencies in the current state of public safety wireless communications and applauds the Commission's attempts to identify and address obstacles toward a solution to the current and potential future communications problems in the public safety community. Fort Worth and the Commission obviously share the opinion that the overriding purpose of this proceeding is to ensure that public safety agencies can continue to fulfill their obligations to protect life and property. In order to achieve this noble goal, Fort Worth urges the Commission to develop a regulatory scheme that encourages public agencies to establish joint networks and to otherwise work together in a cooperative effort that allows each agency to resolve the issues they confront based on their own respective needs and situations. Where joint networks are not possible, Fort Worth asks the Commission to adopt rules that will encourage commercial providers and public safety agencies to negotiate solutions to their mutual benefit and that will recognize the financial limitations that

19 *Id.* at para. 95.

confront the public safety community. A highly competitive public safety equipment and services market place will provide the best climate for agencies and commercial providers to meet their respective and very specific needs yet allow them to resolve together the challenges of the future with a minimum of detailed regulation.

Respectfully submitted,

CITY OF FORT WORTH, TEXAS

September 18, 1996

Bob Terrell
City Manager

Peter Ungar
Telecommunications Services Manager

Peter Vaky
Assistant City Attorney

BUSINESS ADDRESS AND TELEPHONE:

1000 Throckmorton
Fort Worth, TX 76102
(817) 871-7600